IGSM2 Peer Review Framework

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Presented by
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Purpose of the Presentation

- Status update on developing IGSM2 peer review framework

Need

- DWR’s local partners have modeling needs
- Model evaluation and selection is a locally driven process
- Peer reviewed and well established models are preferred tools

Process

- CWMB, in consultation with Modeling Support Branch, initiated a process to develop a robust peer review framework
- WRIME was tasked to develop a draft document for discussion by a larger group
  - Investigation of goals and objectives
  - Research of industry standards and other successful peer reviews
  - Draft was modeled after CALFED's CALSIM peer review
  - Discussions and refinements
- Broadened discussions with USGS, USBR, UC Davis

Discussion Group

- 3 Meetings at DWR
- Participants in meetings and call-ins:
  - CWMB (Eric Hong, Tim Parker, Mary Scruggs)
  - Modeling Support Branch (Francis Chung, Tariq Kadir, Can Dogrul, Michael Moncrief)
  - USGS (Randy Hanson, Eric Reichert)
  - UC Davis (Eric LaBolle)
  - RWA (Rob Swartz)
  - USBR (Mike Tansey)
  - WRIME (Saquib Najmus, Ali Taghavi)

Objectives of Peer Review

- Facilitate independent third party review
- Provide constructive feedback to model developers
- Identify strengths and weaknesses of the model
- Help decision making process of DWR local partners in model selection and/or update
- Help build credibility of the model

Industry Standards on Peer Review

- ASTM Standard Guides for Developing and Evaluating Groundwater Modeling Codes
- Five other ASTM Guides on related topics
- CALFED Peer Review on Priority Issues through the Science Program
- CALFED Strategic Review of CALSIM II
- CWEMF Peer Review of Computer Models
- CWEMF Guidelines for a Peer Review Process
- CWEMF Strategic Analysis Framework to Guide Future Development of Analytical Tools for Managing Water in California
- EPA Guidance for Conducting External Peer Review of Env. Reg. Models
- USGS Guidelines for Evaluating Groundwater Flow Models

Peer Review Focus

- Technical Soundness
- Model Accuracy
- User Friendliness

User Community Involvement

- Input of user community is an important part of the review process
- Workshops/briefing meetings/websites to solicit user feedback, concerns, questions

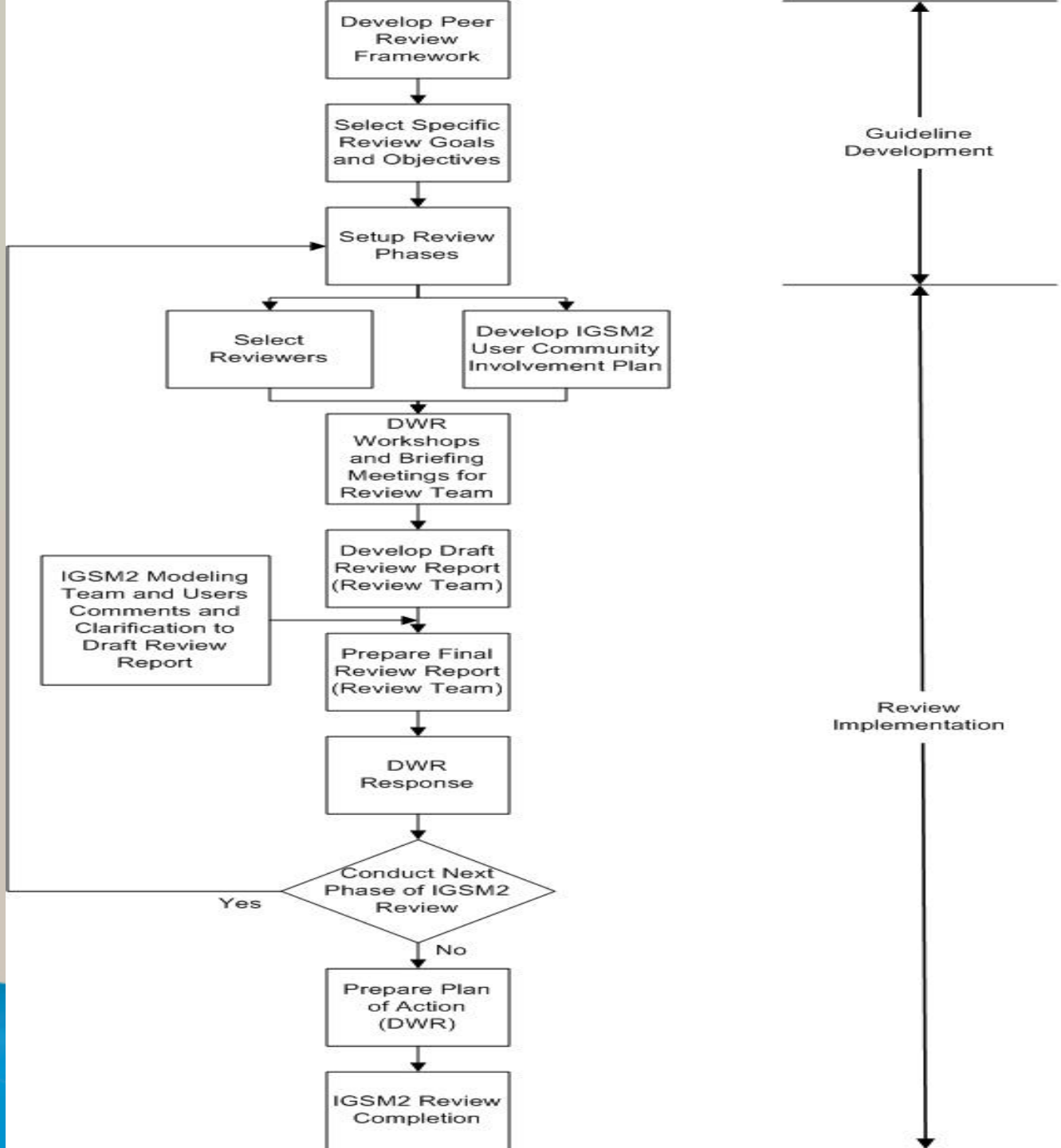
Review Process

- Transparency
- Objectivity
- USGS Internal Review Process
  - Documentation of theory and code with example by developers
  - Tech review and testing by 1-2 peers at USGS
  - Coordination and revisions
  - Final review and approval by supervisor

Review Panel

- Critical Success Factors
  - Credibility
  - Authority
  - Clearly defined roles and responsibilities
- 5-6 Member Panel
  - University Professors (2 members)
    - 15-20 years of experience in numerical modeling
    - Respected members of the community with numerous publications
  - Engineering Consultants (1-2 members)
    - Extensive practical experience in California
    - At least 15 years of experience
    - Widely respected in the consultant community for their track record
    - 1 of them must have extensive IGSM experience in code and application
  - Government Agencies (1-2 members):
    - Senior DWR staff to coordinate and ensure that the purpose of the review is served
    - Experts from other agencies

IGSM2 Peer Review Process



Next Steps

- Phase I: A process lasting no more than 6 months to obtain a technical assessment of the IGSM2 at a level adequate for assuring no fatal flaws.
- Phase II: A more elaborate process over an extended period – continued peer reviews, university research, grant funding etc.

Phase I Tasks

- Task 1: User Survey
- Task 2: Formation of Review Panel
  - Background, credibility, position of authority, respectability, past peer review track records
- Task 3: Prepare Briefing Material
- Task 4: Hold Briefing Session and Support Review Panel
- Task 5: Draft Review Report
- Task 6: Prepare Response
- Task 7: Prepare Final Report

Questions